

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

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(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 170356-EH	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/NO 2003/000347	International filing date (day/month/year) 22.10.2003	Priority date (day/month/year) 23.10.2002
International Patent Classification (IPC) or national classification and IPC B65D 88/78		
Applicant NAVION ASA et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 19.05.2004	Date of completion of this report 30.12.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Anders Brinkman/MP Telephone No. +46 8 782 25 00

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/NO 2003/000347

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 6 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 7 - 8 _____ received by this Authority on 21-09-2004
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1 - 3 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/NO 2003/000347

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-12</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-12</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-12</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: DE 2538419 A1
D2: US 2879785 A
D3: US 4004429 A
D4: US 4402632 A
D5: US 4660606 A
D6: US 5899637 A

The cited documents represent the general state of the art.

The invention defined in claims 1-12 is not disclosed by any of these documents.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed seabed located storage. Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the invention defined in claims 1-12 is novel and is considered to involve an inventive step. The invention is industrially applicable.

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Claims

- 5 1. Seabed located storage for crude oil or other fluid, comprising:
a storage section (1) in form of an oil and waterproof cloth formed as a flexible
balloon that can be filled with, be used as storage for and be emptied for a storage fluid,
an anchoring section (11, 12) formed as a substructure between a structure section
(2) and the seabed, with means for anchoring to or stable placement on the seabed,
10 a transfer section(13, 8, 9, 4, 14) comprising pipes and valves for loading and
unloading of the storage fluid, arranged in substance exterior to the upper part of the
storage,
characterized in that the structure section (2) is formed as an external casing over
the storage section (1), which structure section is closed in the upper part such that an
15 upward closed volume of size at least corresponding to the volume of the storage section
is formed, but with openings (3) to the surroundings in the lower part.
2. Storage according to claim 1,
characterized in that an oleometer (5) and an acoustic transponder (6) are connected for
20 alarming of oil leakage.
3. Storage according to claim 2,
characterized in that the oleometer (5) is arranged with connection to a pipe from the
upper part of the closed volume of the structure section to the unloading line from the
25 storage, which pipe with connected oleometer also is including a remotely operatable
pump to pump leaked out oil into the unloading line.
4. Storage according to claims 1-3,
characterized in that valves (4, 8) are arranged, which valves close automatically if the
30 loading line, unloading line or storage section and transfer section are disconnected from
the storage.
5. Storage according to claims 1-4,
characterized in that instrumentation for measuring the filling volume of the storage
35 section is installed, readable from the surface.
6. Storage according to claim 1-5,
characterized in that one or more pumps are integrated in the storage, to ease unloading of
oil.

7. Storage according to claims 1-6,
characterized in that all valves, pumps and instruments are operatable from the surface.

5 8. Storage according to claims 1-7,
characterized in that the volume of the storage section as completely filled is about
35 000 m³ or smaller.

9. Storage according to claims 1-8,

10 characterized in that in top of the structure section connections are arranged, which can be
opened to replace the storage section, for example by leakage, and connections for
replacement of modules of the transfer section.

10. Storage according to claims 1-9,

15 characterized in that the storage section is fabricated from woven polyester coated on each
side with a chlorinated cross-bound ethylene based interpolymer alloy, with
reinforcements and internal impermeable liner of LDPE.

11. Storage according to claims 1-10,

20 characterized in that two storage sections, each of about 35 000 m³, are assembled within
a common structure and anchoring section of steel, having dimensions 35 m x 35 m x 102
m, and weight of about 5000 tons.

12. Storage according to claim 1-10,

25 characterized in that the anchoring section (11, 12) is an integrated part of the structure
section (2).